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NPIC/R-157/64

	KURUMOĆH ROCKET ENG	INE TEST FACILITY, USSR
	SUMM	AARY
5X1 25X1D 25X1D	reveals changes that have taken place in the Kurumoch Rocket Engine Test Facility since and permits identification of significant details of the facility about which there has been some doubt. It can now be stated that the installation contains five test stands, including two large vertical test stands and three smaller test stands. The large vertical test stand first seen in is currently operational and contains a single test position. The other large test stand is in the final stage of construction and probably contains a single test	position. One of the three smaller test stands is currently operational and probably contains multiple test positions. The other two test stands are probably operational, and each probably contains a single test position.  The two operational support facilities adjoining the two large test stands appear to be duplicates of each other except for minor differences. The apparent duplication may indicate either that the support facilities do not contain industrial processes which serve the entire test facility or that the items to be tested at the two large test stands are different.
25X1D	INTRODI	UCTION
25X1D 25X1D 25X1A 25X1A 25X1	The purpose of this report is to update a previous NPIC report 1/ published in on the Kurumoch Rocket Engine Test Facility (BE No , located at 53-31N	the test facility (Figure 3), which is based on thephotography. A perspective drawing of a test stand or stands accompanies each table.
25X1 25X1D 25X1D 25X1D 25X1D 25X1D 5X1 25X1D 5X1	The previous report on this installation was compiled from and photography, the latest of which was obtained on In this report revisions and additions to information previously released are based on photography from Mission (Figure 2).	Rybinsk Reservoir  Rybinsk  Yaroslavi  Kostroma  Ivanovo  Gorkiy  Kurumoch  Rocket  ENGINE  Ulyanovsk  Tula
	Included in this report are revisions of a number of rather significant items which have permitted the formulation of certain conclusions. To support these conclusions, which are presented in the final section of this study, certain previously reported information is repeated in	Orel Tambov Penza Kuybyshev  Kursk Voronezh Saratov  Railfoad Canal 0 100 200 50°

FIGURE 1. LOCATION OF KURUMOCH ROCKET ENGINE TEST FACILITY, USSR.

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the body of this report, which consists of four tables included in Figures 4 through 7. Items

in these tables are keyed to a line drawing of

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FIGURE 2. KURUMOCH ROCKET ENGINE TEST FACILITY,

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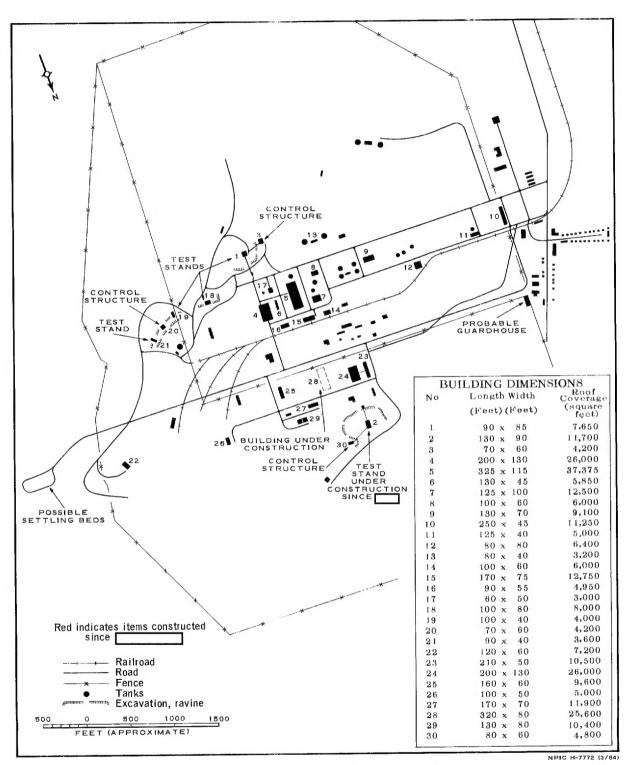


FIGURE 3. KURUMOCH ROCKET ENGINE TEST FACILITY.

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25X1

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		_
General	Data Regarding Completed Vertical Test Stand Vertical test stand (item 1) built in excavation in side of bluff Overall height, 185 ft	
Superstructure	90 by 85 ft, height 125 ft (70 ft above access bridge, 55 ft below bridge); 25-ft overhang over base structure, probably toward blast area  Tower enclosed; two structural members intersect at roof center	
Base Structure	85 by 65 ft, height 60 ft Divided into three longitudinal bays by interior walls or columns	
Access	Bridge, 25 ft wide, directly into stand; other end to abutment structure where it joins road to checkout building; bridge in line with checkout building Bridge containing passageway/pipe gallery from control structure Road to blast area at base of stand	
Status and Timetable	Operational prior to(blast mark in snow) Under construction inexterior completed by	25X1D 25X1D
Blast Mark	Visible on photography of Length: estimated 240 ft, overall, from base of stand Width: 150 ft at maximum, 70 ft at base of stand Axis of blast mark centered on stand; blast mark symmetrical	25X1D 25X1D
Drainage	Into ravine; possible settling beds downstream	
Control Structure	Building (item 3); 70 by 60 ft; on edge of excavation Site prepared by Bridge containing passageway/pipe gallery from control structure to stand	25X1D
Operational Support	Checkout building (item 4); 200 by 130 ft, height 30 ft; two bays; drive-through bay in line with access bridge road; under construction in  Building (item 6); 130 by 45 ft, height 30 ft; connected to checkout building by passageway/pipe gallery; under construction in  Building (item 5); 325 by 115 ft, height 60 ft  Building (item 15); 170 by 75 ft, height 30 ft; contains horizontal cylinder; under construction in	25X1D 25X1D
25X1D		
Dispersal	575 ft to checkout building 160 ft to control structure	j
ETEM 3	185'	
	THEM I	
		3
E	BLAST MARK	,
	ITEM NUMBERS ARE KEYED TO FIGURE 3	

FIGURE 4. COMPLETED VERTICAL TEST STAND (Item 1, Figure 3).

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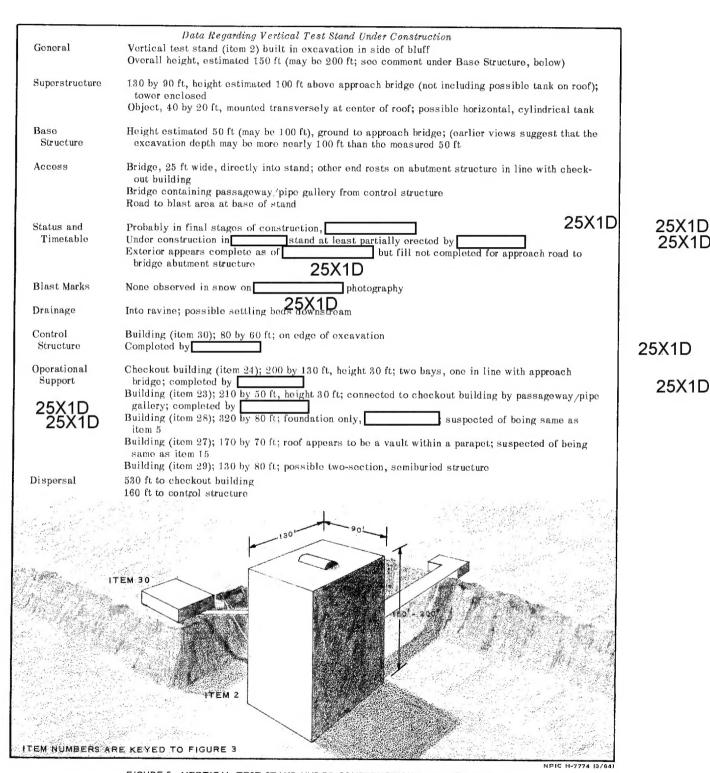


FIGURE 5. VERTICAL TEST STAND UNDER CONSTRUCTION (Item 2, Figure 3).

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Data Regarding Possible Multiple Position Test Stand
Test stand (item 18); built on edge of an excavation cut into the side of bluff
100 by 80 ft; possibly contains multiple test positions; greatest dimension parallel with edge of excavation and blast area Structure, 60 by 40 ft and taller than main structure, attached on one side of tower Estimated height above approach, 40 ft Object on roof possibly between test bays
Extends to hottom of excavation
Built inside of curve in road descending side of bluff Direct access from road to upper level and to blast area
Operational 25X1D 25X1D  Excavation present in exterior completed by no apparent change 25X1D  between 25X1D
Visible in snow on photography of
Into ravine; possible settling beds downstream
None observed
None observed
420 ft to item 4 320 ft to test stand (item 19)
BERS ARE
FIGURE 3

FIGURE 6. POSSIBLE MULTIPLE POSITION TEST STAND (Item 18, Figure 3).

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	Data Regarding Two Small Test Stands
General	Two test stands (items 19 and 21) built in two-level, stairstep excavation cut into side of bluff; stands are at edge of bench formed by the upper excavation and extend out into the lower excavation
Superstructures	Item 19: 100 by 40 ft, height 40 ft above floor of upper excavation
	Item 21: 90 by 40 ft, height 40 ft above floor of upper excavation Dimensions are estimates; longest dimension of each stand is at right angles to edge of bench
Base Structures	Extend to bottom of lower exeavation at both stands
Access	Inclined approach bridges to tops of stands from top edge of upper excavation  Road to blast areas
Status and	Both probably operational; exteriors complete No apparent change in either stand between
Timetable	Executation was in progress for item 19, but not for item 21, in
25X1D	location of item 19 was just inside security fence and item 21 was just outside
Blast Mark 25X1D	No blast mark visible at item 21 Possible blast mark at item 19 visible in snow, fan shaped; estimated overall dimensions, 70 by 40-80 ft; slope and irregular surface downgrade accuracy of measure-
	ments Distance from bases of stands to trees in path of blasts: 280 feet for item 19, 200 ft for item 21
Drainage	Into ravine; possible settling beds downstream
Control Structure	Building (item 20), 70 by 60 ft; located between the test stands and in line with them
Operational Support	None observed
Dispersal	Distance to control structure for Item 19 is 170 ft and for item 21 is 150 ft Distance from item 19 to item 18 is 320 ft
	100
I FEM Y	1TEM 20
	BLAST MARK
	70.
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FIGURE 7. TWO SMALL TEST STANDS AND CONTROL STRUCTURE (Items 19, 20, and 21, Figure 3).

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#### CONCLUSIONS

Certain conclusions not previously attainable have been reached concerning details of the Kurumoch Rocket Engine Test Facility as a result of the photographic coverage. These conclusions are possible because of several factors. First, the new photography permits comparisons between the facility as it is now and as it has appeared at different times in the past. Second, the quality of the latest photography has made possible the taking of certain measurements and the discernment of certain shapes that could not be accomplished on earlier photography. Finally, the presence of

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Prior to the latest photographic coverage, the principal matters about which there had been some doubt were: (1) the number of test positions at the test stand first identified in (item 1, Figure 3); (2) the size of the test stand under construction (item 2); (3) the number of smaller test stands, and (4) the function(s) of the two buildings in the operational support facility adjoining the completed vertical test stand (item 1). 2/3/

The latest photography has permitted measurement of the vertical test stand under construction as well as of other structures, and this data has been presented on Figures 4 through 7. Other findings and conclusions are presented in the following numbered paragraphs, including statements regarding the status of the test stands, data concerning the number of test positions in each stand, and data concerning the operational support facilities.

1. The installation contains five test stands: a vertical test stand (item 1, Figure 3), a vertical test stand under construction (item 2), and three smaller test stands (items 18, 19, and 21). Adjoining each of the two vertical test stands is a support facility containing a checkout building and other structures.

- 2. The vertical test stand (item 1) is currently operational and contains one test position. The stand has a single symmetrical blast mark, the axis of which is centered on the stand with its width next to the stand being the same as the width of the stand. (For additional data, see Figure 4.)
- 3. The vertical test stand under construction (item 2) is in the final stages of construction. It is larger than the other vertical test stand and probably contains one test position. The construction status is indicated by the completion of the structure and lack of an access road; that it probably has one position is indicated by the shape of the stand. (For additional data, see Figure 5.)
- 4. One of the smaller stands (item 18) is currently operational and probably contains multiple test positions as indicated by its shape and the size and position of the blast mark. (For additional data, see Figure 6.)
- 5. The other two smaller stands (items 19 and 21) are similar in appearance, are different from the other stands, and are probably operational. The access bridge at each stand leads to the top of the stand. Each stand contains one test position; this is indicated by the presence of one centered possible blast mark at item 19, by the lack of apparent change between

and by the shapes of the stands. (For additional data, see Figure 7.)

6. The operational support facilities adjoining the two large test stands are duplicates of each other in part and appear to be duplicates in many other respects. Items 4 and 24, 6 and 23 are matching pairs, and items 5 and 28, 15 and 27 are possible matching pairs. The apparent duplication may indicate either that the support facilities do not contain industrial processes which serve the entire test facility or that the items to be tested at the two large test stands are different.

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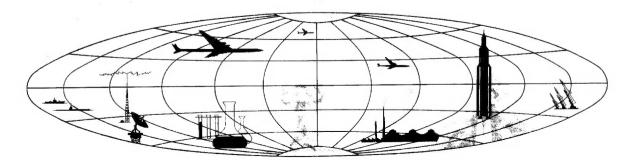
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